Electricity on the Farm

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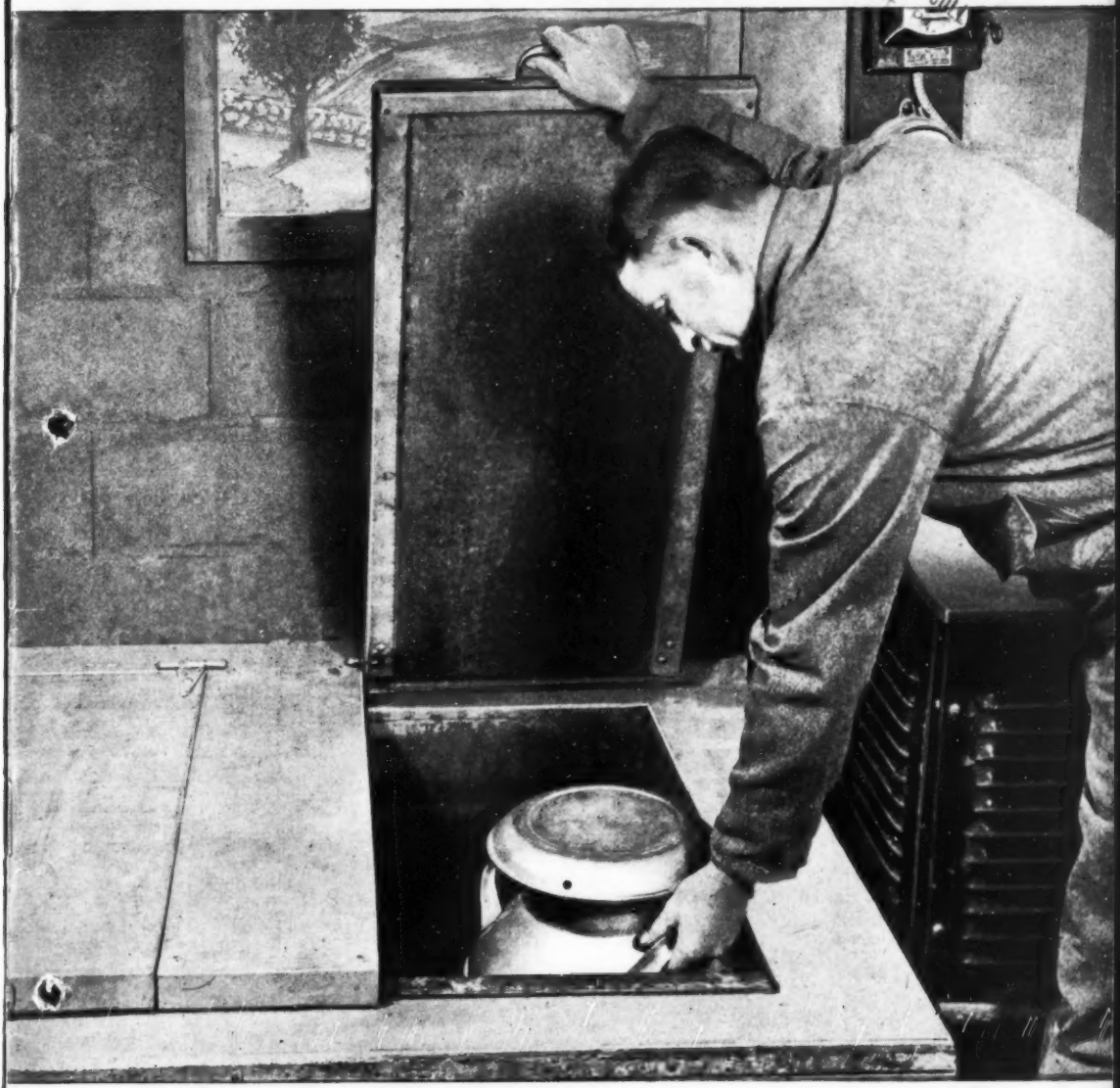
A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY



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(See inside back cover for details)

MAY
1937

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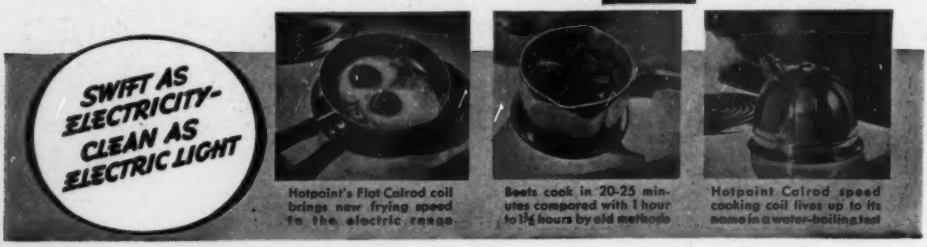
(Left) THE VOGUE — Hotpoint's new modern style, square-type electric water heater, provides continuous automatic hot water service. Requires no attention.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Hotpoint's Flat Calrod coil brings new frying speed to the electric range
Beets cook in 20-25 minutes compared with 1 hour to 1½ hours by old methods
Hotpoint Calrod speed cooking coil lives up to its name in a water-boiling test

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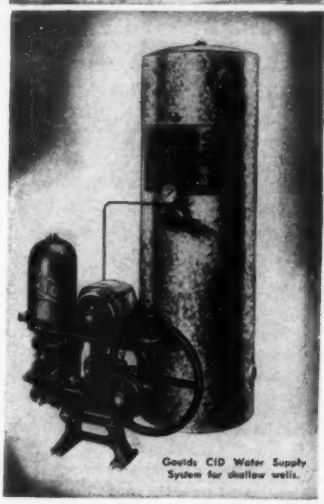
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May, 1937

Electricity on the Farm

Vol. 10, No. 5

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EDITORIAL

PRODUCING PREMIUM MILK

When milk can be produced with a bacterial count consistently below 2,000 per cubic centimeter, it would appear to be quite a remarkable performance, particularly when it is remembered that certified milk is permitted to contain up to 10,000 bacteria per c.c.

And yet such performance is commonplace among some dairy farmers who utilize electricity for the many services in milk production that it is particularly fitted to perform.

In two applications in particular it has great bearing on the production of milk with low bacterial count: in providing hot water for sterilization of dairy utensils and producing low temperatures to chill milk.

For heating water it is ideal. Not only does it eliminate fire hazards but it provides the hot water right at the place where it is to be used, and hot water which is really hot. Through thermostatic control, the temperature may be kept right up at the desired point at all times, the current being cut in and out automatically. The ease of providing hot water by this method avoids the possibility of improper sterilization quite commonly encountered where water has to be heated in the house and carried in pails to the dairy barn.

In cooling milk, it is equally superior to other methods. The immersion tank is kept continually cold when in use and there is no such thing as forgetting to put ice in the water, for no ice is used. In surface cooling equipment it can produce temperatures below those created by ice water.

Electricity is rapidly assuming a commanding position in the production of premium milk.

FRED SHEPPERD.

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Fig. 2510 Fig. 2700

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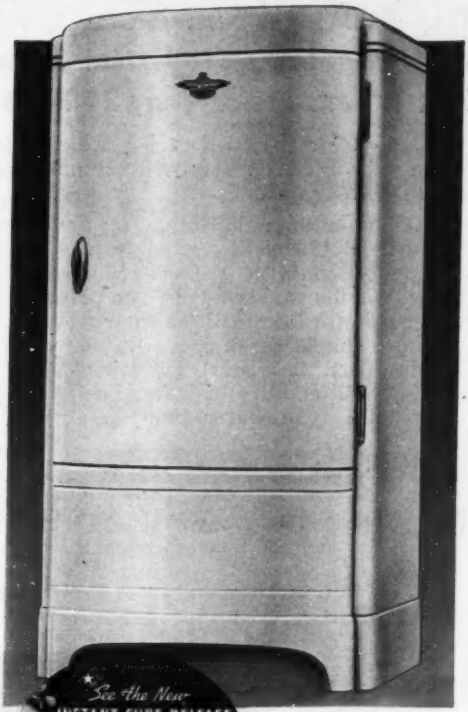

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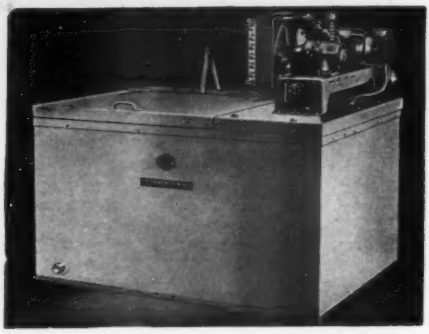
Pneumatic water agitation, an *exclusive*, patented McCormick-Deering feature, used in connection with a built-up ice bank, makes possible rapid cooling. The pneumatic water agitator is in reality a rotary air compressor, simple in design, with only one moving part. It is started by simply pouring a small quantity of water into the top filler hole. The water immediately seals the rotor, which pumps the air to the agitating air pipes located at the bottom of the box below the ice bank. The constantly rising bubbles cause the water to pass over the face of the ice bank where the water is thoroughly chilled and circulated all around the cans, from the bottom up to and over the milk level.



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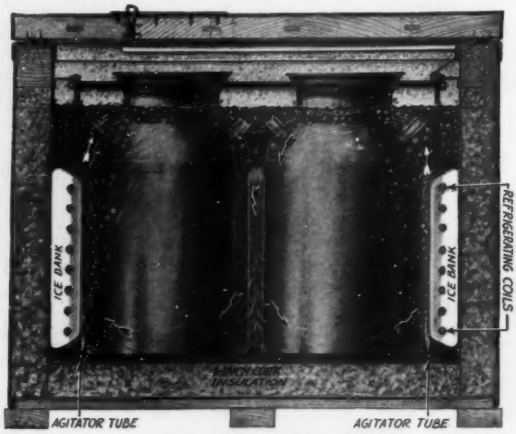

Cross-section of a McCormick-Deering Milk Cooler showing the constantly rising bubbles which force the water to circulate inside the box.

Ask the McCormick-Deering dealer to show you this and the other valuable features in McCormick-Deering Milk Coolers. He also has the famous McCormick-Deering Milkers and Cream Separators which have long proved invaluable investments for the dairy farm.

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McCORMICK-DEERING

Above: The Grossniklaus dairy barn with milk house in the foreground.

Insert: Ernest Grossniklaus, a Washington dairyman, and his son.

PREMIUMS FROM HOT WATER

By J. C. SCOTT
Agricultural Engineer

MR. C. C. KENDALL is a dairyman who lives near Sequim, in the northwest part of Washington, but he is not just another dairyman. Our reason for saying that Mr. Kendall is not just another dairyman is that he is one of the few in the district who is getting a substantial premium for his milk. He gets this substantial premium because the quality of his milk is such that people are willing to pay more money for it.

By producing very high quality milk Mr. Kendall is able not only to sell all his milk under the National Guernsey Cattle Club emblem, but on three occasions he has won the highest award given by the Guernsey Cattle Club for the production of quality milk on the Pacific Coast.

One day when I visited Mr. Kendall, I said: "How do you maintain high quality and superior flavor in your milk so consistently?" His answer was: "In order to maintain high quality flavor in milk, utensils must be thoroughly washed every day with plenty of scalding hot water. As you know, for this purpose we prefer the electric water heater which is in the milk house, furnishing plenty of hot water.

As soon as the utensils are washed they are put into an electrically heated cabinet, or sterilizing vat, where they are left from one milking to the next. While they are in this vat there is absolutely no chance of the utensils becoming contaminated by dust or sediment which carry enough bacteria to occasionally destroy the high quality, and even the flavor of the milk.

"Of course," Mr. Kendall said, "there are several factors in connection with the production of milk that is of high enough quality to command a substantial premium, such as good healthy cows, milked in clean, comfortable quarters, milk immediately cooled; but the thing which I believe is needed most around the milk house is plenty of hot water."

For several years it has been the writer's privilege to call upon many dairymen in Washington, and the one thing we always find is that the production of high-priced milk and the use of a great number of kilowatt hours of electricity go along, hand in hand. Only a few years ago it was considered impractical to produce milk which would grade as certified, because it was too difficult and

Above: The C. C. Kendall dairy farm. Milk house and milking parlor where only six cows are milked at one time, in right foreground.

Below: Mr. Kendall and his son.

too expensive to keep the bacteria content of the milk below 10,000 per cubic centimeter. Now we find dairymen like Mr. Kendall, who have lowered the cost and reduced the labor incident to producing milk and are at the same time producing higher quality milk by allowing electricity to fire up and heat water, pump and carry water, cool and keep the milk cold.

Ernest Grossniklaus is another dairyman who has for years been getting a premium of about 5c per lb. of butterfat on the Port Angeles market. The bacteria content of milk produced by Mr. Grossniklaus never runs over 2,000, and it is generally around 700. All dairymen who have attempted to produce certified milk will realize that 700 bacteria per cubic centimeter is extremely low. Milk is usually considered good enough to be certified as extra good milk when it contains under 10,000 bacteria per cubic centimeter.

In commenting on his consistent record of low bacteria content and high quality milk Mr. Grossniklaus said: "We take the best care of our milk and milking utensils that we possibly can, and we think we do it economically too, because we use electricity in nearly every operation. Immediately after each cow is milked, the milk is brought into the milk house where it is placed in cans and the cans placed in a "flowing cold" milk cooler. The flowing cold milk cooler is a vat containing water continuously chilled by an electric refrigeration unit. The water in this vat is kept in circulation by a small electrically driven pump. Although the milk is not put over the aerator, yet in this vat it is brought down to a temperature of about 40° within 25 to 30 minutes.

"I like this system," Mr. Grossniklaus continued, "because the milk is not exposed to the air and dust as much as by other methods of cooling. By leaving the milk cans in the cold vat until they are picked up for the market, there is little chance of bacteria multiplying in the milk.

"Now the next thing which I consider of utmost importance in connection with the production of high quality milk is to have plenty of scalding hot water with which to wash the utensils. I use a 40-gallon electrically heated hot water tank which is well insulated. The type of tank which I use has two heaters, one about ¼ of the way from the top, and one at the bottom. These two heaters heat the water in hurry when it runs low, but they work automatically, so we always have hot water ready without thinking of building fires.

"The cold water is introduced into the tank under a baffle. This stills the water so that it does not mix with the hot water. From this 40-gallon tank we can draw off at one time, 35 gallons of water just barely under the boiling point. This large amount of scalding hot water is all that we need for washing and scalding our milk utensils and cans."

Mr. Grossniklaus has about 60 head of stock on his place, and is usually milking about 50 head of cows—sometimes more.

His cost to operate the water heater for washing and scalding all utensils for this herd of cows averages less than the cost of coal or wood to heat that much water, with absolutely no trouble, labor, building fires, and certainly no dust from ashes.

Another dairyman who is very proud of his 40-gallon electric water tank is Mr. Thomas McGrath, who lives in Pierce County, Washington. Mr. McGrath has for several years been milking a small herd of from 5 to 11 cows, and has been keeping the bacteria count very low and producing milk that meets with much satisfaction on the market.

Mr. McGrath said: "It is so much less trouble to use the electric water heater. We just forget it. There are no fires to build. The water is always scalding hot and ready whenever we need it." Mr. McGrath has not only his buckets to wash but also bottles in which he distributes his milk. Mr. McGrath also has an electric refrigeration box in which he keeps the milk, at about 38 to 40° until it is distributed. The combination of a modern electric water tank and electric refrigeration has made it possible for Mr. McGrath to sell milk without ever having to replace a single quart since the installation of these two modern pieces of equipment.

"But, believe me," Mr. McGrath said: "a man must be particular with regard to sanitation. We are just as fussy in washing and scalding the milk buckets as we are with the bottles."

Mr. A. L. Dziergas, who lives near Castle Rock, Washington, also uses a 40-gallon electric water heater in the operation of his 15-cow retail dairy. Besides 12 milking utensils which he washes twice a day, Mr. Dziergas has 110 bottles to wash. There seems to be plenty of hot water for the dairy, since Mrs. Dziergas says that she uses hot water from the dairy water heater for washing clothes two or three times each week. The average monthly current consumption is 437 kilowatt hours.

These modern electric water tanks are made in various sizes from 15-gallon up to 60-gallon, and one dairyman who ships his cream to the factory, expressed the value of his new 15-gallon water tank by stating that his wife had been particularly good natured ever since they installed the little water heater in the milk house because he did not have to rob the kitchen of the hot water every morning in order to wash up the utensils. It is true that a small dairy water heater in the milk house will relieve the housewife of a great deal of annoyance on many dairy farms. Under old methods she never knew when the water she was heating for some other purpose might be taken to the milk house to wash up the utensils.

But probably more important than the inconvenience of the old method is the fact that water carried from the house is never hot enough by the time it is used in the milk house, to do a really good job of cleaning the utensils. Then too, there is really never enough hot water to wash utensils when it is carried from the kitchen.

Many dairymen are finding it not only much easier, but very much more economical to produce a higher quality milk by just allowing electricity to do more of the drudgery for them.

Above: A. L. Dziergas, his daughter, and the 40-gallon insulated electric water heater which furnishes him plenty of water for scalding all utensils for his 15 cow retail dairy.

Left: Interior of Ernest Grossniklaus's milk house. 40-gallon electric water tank and corner of his electric milk cooler.

NEW ELECTRIC AIDS FOR ORCHARDISTS

By EARLE BURKE

FROM the time Pacific Coast orchardists discovered that selective, better quality apples could be produced by cutting one apple away whenever two apples touched, they have been alert to use improved fruit-raising methods.

This is particularly true in California, where electricity is playing a more important part this year than ever in helping raise high quality fruit for shipment to distant, competitive markets.

In addition to the task of operating labor-saving machinery, irrigating systems and bringing better lighting, radio, refrigeration and other comforts to rural homes, electricity has taken on new jobs.

These new electric helps to fruit growers are: central pumping plant for spraying fruit trees; operating individual reservoirs in areas where low water tables make it difficult and expensive to pump enough water for thirsty trees; X-ray machines to test fruit quality; electrified traps to combat insect pests.

When spring time rolls around, one of the biggest jobs in the fruit-raising districts is properly spraying the trees. Instead of the slow and laborious work of hauling tanks and pumps from one tree to another, some orchardists are now using an electrically operated spray system from a central tank with pipe lines radiating out through the orchard. A plant of this kind is not difficult to install and its big advantage is the considerable saving in time and labor.

A typical electric spraying installation is that in the orchards of McCurdy and Kennedy, about three miles west of San Jose, in the famous fruit-raising Santa Clara Valley. The equipment consists of a centrally located tank with a capacity of 1,000 gallons; a 10 horsepower motor-driven pump; one inch pipe for main lines through the orchard and three-quarter inch pipe for laterals. Such an arrangement is considered adequate for tracts of 60 to 80 acres. The prevailing practice is to allow one line of pipe for every seven or eight rows of trees, with outlet valves arranged about every 200 feet. A man simply attaches 100 feet of hose to an outlet valve, sprays all trees within reach, then moves on to the next valve.

"When spring time rolls around, one of the biggest jobs in the fruit raising districts is properly spraying the trees. Instead of the slow and laborious work of hauling tanks and pumps from one tree to another, some orchardists are now using an electrically operated spray system from a central tank. A plant of this kind is not difficult to install and its big advantage is the considerable saving in time and labor."

Left: Spring spraying of fruit trees in McCurdy and Kennedy orchards, Santa Clara Valley, California, from central tank using electrically operated pumping system. Lines of hose are attached to outlet valve at right. J. Ross Kennedy (left) is supervising operations. Through the trees, at extreme right, another spraying crew can be seen on the next row of trees.

Below: Blossom time in Santa Clara Valley. Electric pump house for irrigating is shown in center.

The central tank is divided into two sections. This enables spray to be mixed in one section of the tank, flow to the other when ready for use and from there to be pumped through the network of pipes. This two-section arrangement permits the orchard crews to be drawing spray continuously and eliminates any delays or waiting for new batches of spray to be mixed.

Central Tank Installations Efficient

Other Northern California orchardists are discovering that central tank installations enable their spring spraying to be done more quickly. Among those in service are four in the Courtland-Walnut Grove district in Sacramento county—two operated by the Still Water Orchards Company, one by Dennis Leary and another by Hutchinson and Darsie. In the Santa Clara Valley are two others besides the one described: Jackson Bros. near Milpitas, and Walter G. Brown at Agnew.

All these different users report that the new method of spraying has many advantages over the old. It is not only more convenient and more economical but effects a considerable saving in time. Better results can be accomplished with less spray and there is no danger of trees being scraped or injured as when tanks are hauled through the orchards.

The Still Water Company states that a 75-acre orchard can be thoroughly sprayed in nine hours. Formerly six or seven days were required to do the job with tank wagon equipment. Spraying can also be done when needed. It is not necessary to wait for the soil to dry if the orchard is muddy from rain or irrigation, as was always the case when heavy wagon equipment had to be hauled. This company also reports "a very substantial sav-

ing" in operating costs and in the amount of spray required.

Individual irrigation reservoirs are increasing in use in Santa Clara county. Originally designed to help out a poor well, today these reservoirs are a big factor in lowering both power and labor costs. Instead of pumping only during the day to draw water from the well into irrigation ditches, the orchardist pumps night and day into the reservoir and irrigates 12 hours. With this plan of operating his pumping plant he can use a smaller motor and pay a lower service charge. The 24-hour-a-day operating gives a higher load factor and enables the user to get a lower power rate. Also, less power is used with the smaller pump because it does not draw down so far. With the aid of the reservoir the orchardist can irrigate faster because he has a bigger volume of water to work with.

Reservoir Construction Not Difficult

Reservoirs are not hard to build. Last year A. L. Shaw of Campbell built one in two days by throwing up five-foot earthen banks around a high place on his 35-acre tract. Its capacity is 160,000 gallons. Ample water is fed to all sections of the place by gravity flow. Shaw draws on the reservoir by day and runs the pump at night to refill it. Formerly when pumping directly onto the land he couldn't get nearly enough water with a 40- horsepower pump; now one half that size does the work. His power bills are considerably lower and his trees are adequately irrigated for the first time in years.

F. E. Mitchell and his son, F. W. Mitchell, who own adjoining prune orchards in the Campbell-Los Gatos region, recently followed Shaw's example and constructed reservoirs. Both are enjoying similar benefits. Mitchell senior replaced a 50 horsepower pump with one of 25 horsepower and the son substituted 10 horsepower for 40.

The very latest electrical aid for California orchardists comes as the result of the severe frosts which affected certain sections in the California citrus belt during the late January-early February freezes this year. This new device consists of a specially designed X-ray machine used by the growers organizations to inspect oranges coming from frost-bitten areas. It is particularly helpful where the orange has been but lightly touched by frost and from the outside seems to be perfect. The machine instantly reveals hollow places or juiceless pulp and enables imperfect fruit to be discarded.

Electrified traps to combat insect pests in orchards and fields are rapidly coming into wide use. More than 200 of these installations are now in service throughout the state, most of them under the direction of the College of Agriculture, University of California.

When this year's California fruit crop finally arrives at maturity, it will be found that electrical aids have played an important part in enabling it to reach the quality standards desired by growers.

•

Blossom time in Santa Clara Valley, California, orchards.

•

Frank Russell, Manager of the walk-in cooler, takes down one of the beeves hanging in the cooler. The room is filled with pork and beef. Farmers can butcher meat in summer and it won't spoil when kept there.

COMMUNITY COLD BOX BRINGS BIG SAVING

By WARNER OGDEN

A SMALL electrical refrigerated room in the Russell General Store at Farragut community near Knoxville, Tenn., has saved farmers approximately $1,400 within 16 months. It has also permitted them to have fresh meat on the table at all seasons.

The new idea in use of electricity on the farm has meant much to them. Formerly, a sudden hot spell at hog or beef-killing time meant meat spoilage. The added expense of feeding the animals and the loss in weight of some while waiting for weather suitable for killing was still harder on the farmer's pocketbook.

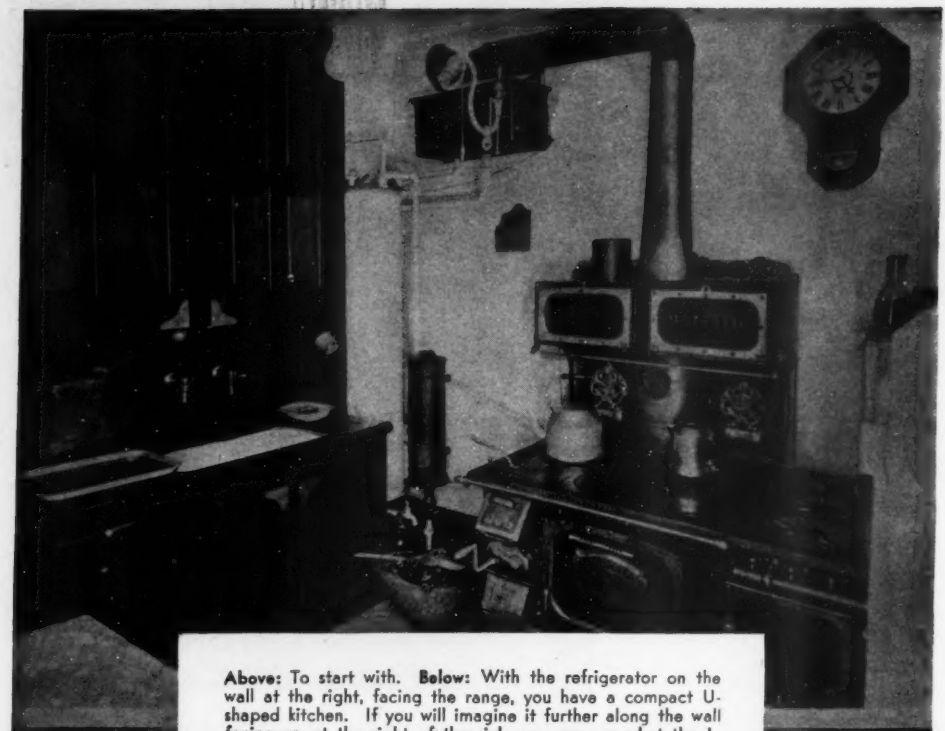
If a hog or cow was accidentally hurt during warm weather, it was ofttimes a complete loss to the farmer. But with the community walk-in cooler a farmer can prepare meat the hottest day of summer without fear of its spoiling. In fact, just to prove that it could be done, A. M. Russell butchered a hog last June, when the weather was especially hot and humid and when he wanted fresh meat, not a bit of it was spoiled. Other farmers through the use of the cold box saved the meat of pigs and cows which suffered broken legs or hurt themselves badly by running into barbwire fences.

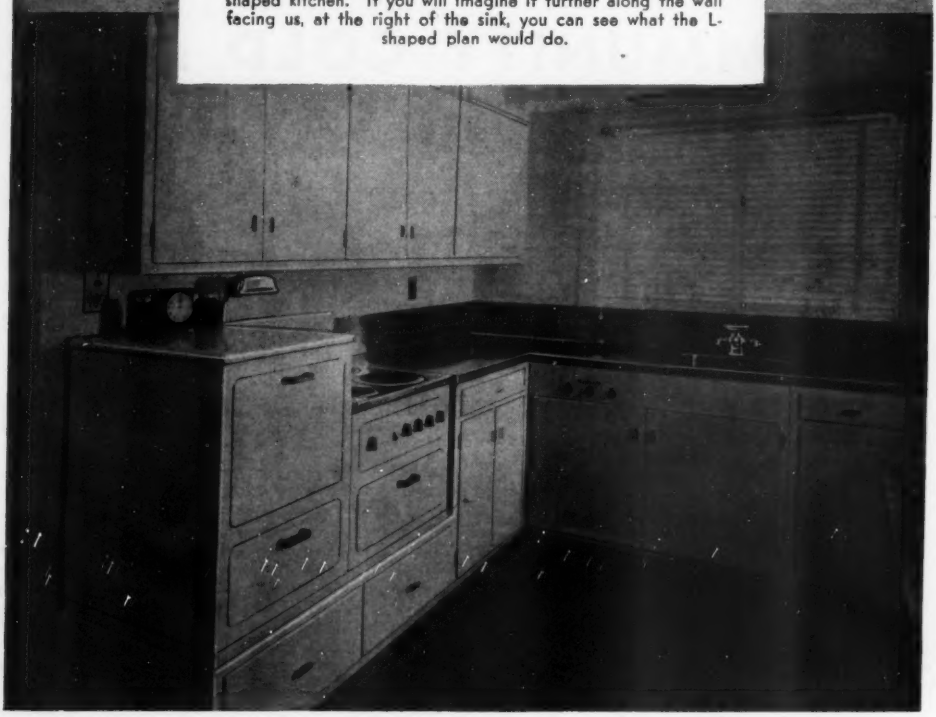
The cooler, six and a half feet long, eight feet four inches high and four feet four inches wide, was built by students in the vocational agriculture classes at the University of Tennessee, Knoxville.

It is lined with three inches of cork and treated with asphalt and has a concrete floor. It is cooled by a small motor driven refrigerating machine that costs the group on an average of $3 a month.

Non-members who keep meat in the cooler are charged a half cent a pound a month.

Another advantage of the cooler is that a farmer can keep meat or produce in good condition while waiting for a better price. J. F. Russell was offered $4 for a veal calf by a butcher. He gave five pounds of the meat to a friend for butchering the animal, kept another five pounds for his own use and sold the remainder to patrons of the cooler at local meat prices for $9.10. The cooler storage charge was 25 cents.

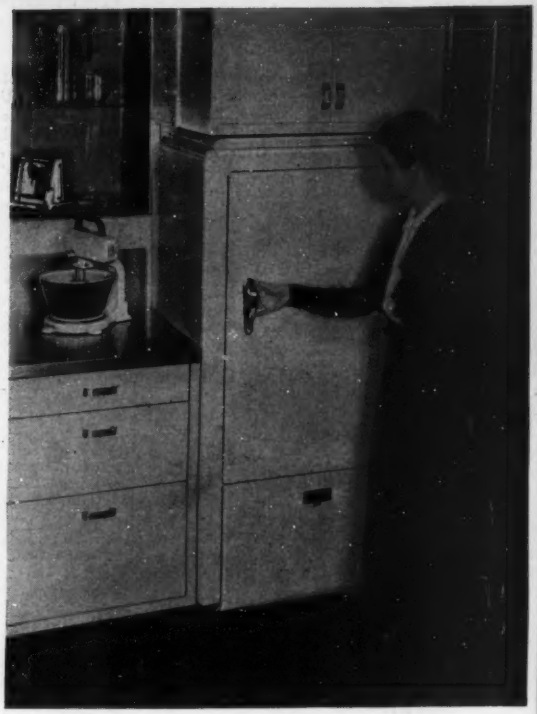




Above: To start with. **Below:** With the refrigerator on the wall at the right, facing the range, you have a compact U-shaped kitchen. If you will imagine it further along the wall facing us, at the right of the sink, you can see what the L-shaped plan would do.

Brass Tacks

By VERA B. MEACHAM



The food preparation center. (Could you paint cabinets over the open shelves? They would be more convincing, I know.)

SOME one is always suggesting that we get down to brass tacks. I have no idea where that expression came from, have you? But we all know what it means. Anyhow, this is the month we are going to get down to brass tacks in our kitchen planning.

Planning is one of those lovely inexpensive pleasures we can enjoy whatever the state of the budget. And once the planning is carefully done, we find, many times, that carrying out those plans is neither difficult nor impossible.

When you take up a pencil and get to making marks on a clean sheet of paper to show your husband just how you would like to have your kitchen arranged, you plan the room as a whole. You have to. In no other way could you manage an arrangement that will let you get the most work done in the shortest time with the least running around.

If you are fortunate enough to be able to plan for a U-shaped kitchen with the sink at the bottom of the U, the refrigerator near the back door, and the range near the dining room door, you have the arrangement kitchen engineers call the most efficient. Your working area is compact; it is not crossed by a line of traffic through the house; it shortens your kitchen mileage.

Nor does this very attractive arrangement mean that you have to live alone out there while you are working. There is no reason why the other end of the room, the open end of the U, should not be big enough for a breakfast table, for a desk and shelves for your cook books, for the baby's play pen, for a rocking chair and a mending basket.

Planning your kitchen is an intimate personal thing.

The engineers can plan for working areas to help you place your equipment and store your tools to make your work easier. I want to tell you what they are saying about just these things. But you alone can take these plans and fit them into your home to make your kitchen liveable.

You may not be able to make a U arrangement in your kitchen. Try an L then, with the sink and refrigerator or the sink and the range together on the long side. Remember, though, to keep the sink between the range and refrigerator so you can still get what the factory worker calls straight line production on your meals.

Once you have the kitchen arranged on paper with due reference to the windows and doors already there, you have to begin on those detailed plans for putting away all the things you keep in the kitchen. Without them you can't be sure how your cabinets should be built. Those plans take time, and a good deal of imagination.

We might as well fall into the habit of using the terms the engineers use when they talk about our kitchens. The work there is naturally divided up into storing and preparing food, cleaning and disposing of waste, cooking and serving. To make taking these steps as convenient and easy as possible, the engineers suggest grouping our supplies, our tools, our equipment to take care of each of these steps in turn. That gives us, in planning parlance, a preparation and storing center, a cleaning center, and a cooking and serving center.

It is natural to begin the plan with the preparation area. In modern kitchens this centers around the refrigerator for that offers a storage place for perishable foods. The cabinets and shelves nearby should hold the staples.

Of course you cannot have all of your supplies at eye level or at your finger tips. The flour will probably be in a lower cabinet and the spices up above, but however you plan it, keep in the back of your mind that you are trying to store those supplies and the dishes you will use with them so you can get at them with the fewest possible steps and the least possible bending and stooping.

There should be plenty of room to work on the counter near the refrigerator. It will be as long and as wide as your kitchen and your need dictate. It may be made of tight fitting boards, oiled for a

(*Continued on page* 33)

Upper left: With her electric mixer, she can have two cakes ready for the oven in fifteen minutes. **Upper right:** Ironing with a streamlined, lightweight iron makes the job seem almost like play compared to what it used to be. **Lower:** Electric toaster and coffee maker greatly lighten the task of preparing the farm breakfast.

WIFE SAVERS

By LOUISE LESLIE
Home Economist

MANY people envy the farmer his independence. He raises his own foodstuffs, and works according to his own ideas.

But the farmer's *wife has to be* more independent than her city sister. She doesn't have a grocery store just around the corner in case company comes unexpectedly, just at dinner time. She does not stop at the delicatessen on the way home from club meeting to buy the main part of her dinner. No, she manages to keep her house clean, her family fed and clothed, largely by her own effort.

However, even though she has to do these things, she need not be a slave nor a drudge to her housekeeping tasks. For the expenditure of only a few dollars, she can have more dependable servants than kings and queens of old could have, in spite of their wealth and position. These servants will not talk back to her, nor quarrel amongst themselves, nor fail in their duties. They are run by electricity.

Let us take the matter of food preparation, which is one of the most important tasks in the farm woman's busy life. If she keeps her cookie jars filled, makes her own bread, and bakes all of her cakes and pastries, it will take hours of work by hand, but with an electric mixer it takes only minutes to mix up several days' supply. If she bakes two cakes at a time her mixer will do the whole thing in fifteen minutes.

Here is another tip for using the mixer. Those who have their own cream can make grand butter with it! Simply beat the cream until the water separates out—then wash thoroughly to remove all the water, work in the salt and shape into pats. It will take about 15 minutes to make a couple of pounds of butter, and think of the time saved by not having all the parts of a churn to clean and sterilize.

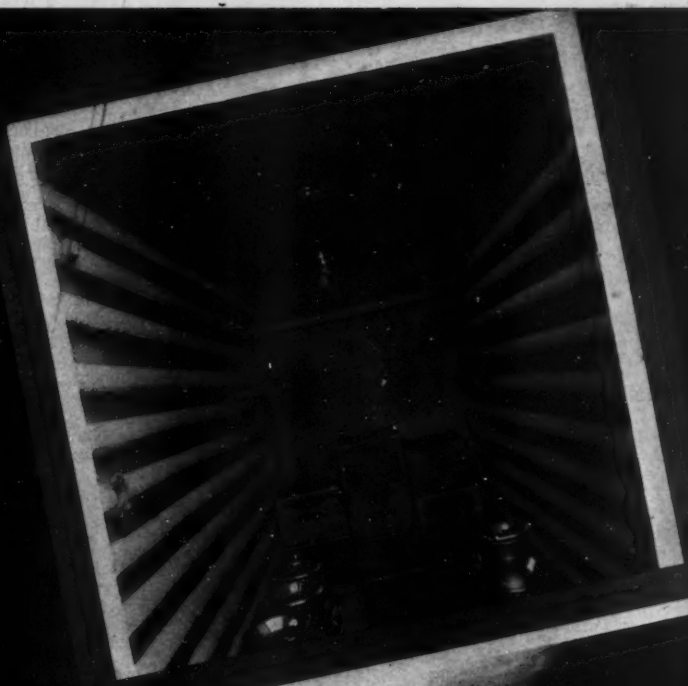
Electric toasters and coffee percolators, or glass coffee makers, will be a boon to the farm homemaker every morning in preparing breakfast —to say nothing of the use they will receive when she is entertaining. The laundry problem is another mighty important item in the farm home, and an electric iron with an automatic temperature control will reduce ironing time considerably. The new irons have temperature indicators marked in terms of fabrics, so that she can always be sure of having the correct heat for silks, wools, cottons, or linens. Also, it is no longer necessary to push a heavy seven-pound iron back and forth over the clothes. If you stop to consider how many times an iron is lifted during a regular ironing, you will see how much actual physical labor is avoided by using one of the modern 3 or 4 pound irons. Really, ironing with one of these up-to-the-minute, streamlined, light-weight irons seems almost like play in comparison with what it used to be.

Power and Labor Studies in Idaho Creameries

By Hobart Beresford

A STUDY to determine the cost of steam, electricity, and labor in representative Idaho creameries has been made by the departments of Agricultural Engineering and Dairy Husbandry of the University of Idaho. The study shows that the management of steam, electrical and man-power, is an important factor in lowering the processing costs. Good management makes it possible to stagger creamery operations throughout the 24-hour period, and by so doing decrease the electrical power bill. A piece of electrical equipment known as a peak limiting device proved to be a valuable aid in holding the power demands within pre-determined limits.

Studies of the operating costs and characteristics of various pieces of creamery equipment showed that the steam, electricity, and labor costs for butter and dried milk were almost identical in both creameries, and that labor represented 55.4 per cent of the total manufacturing cost of making ice cream and 72 per cent of the manufacturing cost of popsicles. The electrical power requirement for manufacturing 1,000 pounds of butter ranged from 130 to 135 kilowatt-hours, and the man-hours for the same amount of product ranged from 17 to 18.2. Can washers were found to use large amounts of steam, the straight-away type using more steam and electrical power than the rotary type. For drying skimmed milk and buttermilk 1¼ pounds of steam were used per pound of product, and it required twice as much electrical power to operate the dryer rolls for the skimmed milk as it did for the buttermilk. The power required for churning varied with the barrel diameter for churns of the same capacity, the smaller diameter churn using the least power. Power studies on churning showed that more power was required to churn cream fresh that day than cream held over.



COLD FOR QUALITY

Cold temperatures, electrically produced, are revolutioning many farm operations having to do with the preservation, marketing and use of food stuffs. These pictures show some of the more important applications of electrical refrigeration in rural America today.

Upper left: The refrigerated milk cooling tank is fast gaining in popularity.

Center left: Refrigerated apple storage keeps the fruit in fine condition until market prices are satisfactory.

Lower left: The modern milk wagon carries its own refrigerating machine, which is plugged into the electric service at the farm to cool the milk compartment before starting on the delivery route.

Upper center: Plenty of ice from the electric ice box. Lower center: The roomy compartments of the modern household refrigerator provide plenty of space for a variety of perishable foodstuffs.

Upper right: The frost on the pipes in this milk storage room is put there by the electrically chilled brine flowing through the pipes.

Lower right: The market gardener finds it profitable to store his wares in a refrigerated room over night and be on hand early at the market the following morning.

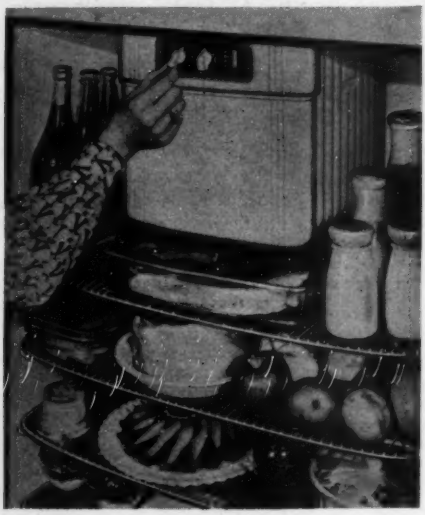
ELECTRICAL HOUSEKEEPING

Conducted by GAIL MEREDITH

IN THE FORTIES FOR KEEPS

Above: A handy compartment for keeping vegetables fresh and crisp.

Below: You can set the cold control for the temperature you need.



WHEN we are taking care of food, the colder we can keep it, the safer it will be from the inroads of the bacteria that spoils it for our eating. It is quite true that we like the taste of many foods better when they are cold; we enjoy crisp green salads, and we like drinks with the clink of ice cubes rattling against each other, but keeping food safe is the real reason for refrigerators.

Cold does it because it slows down the growth and multiplication of those bacteria, giving us a chance to eat that food before they do. Keep food under 50, say the food specialists, because that seems to be about the top temperature for keeping those bacteria sluggish.

They set the lower limit anywhere above 32 for reasons of economy and because freezing does spoil the taste and the texture of many of the foods we store.

Automatic refrigerators have made keeping these temperatures easy. A control on their mechanism can be set to give us the temperature we want inside the box, and all within this safe range from freezing to fifty.

Electric refrigerators maintain an even temperature, too. That is another thing we need to make foods keep. If we let them vary from warm to cold and back again, they will not keep as long or as well as they would at a steady, low temperature.

Examine Construction Before Buying

That is why selecting a box to store food in is an important job of shopping. You know you must have a well built, well insulated box to keep this temperature for you, and to keep it economically.

On a well built box the door fits snugly. The hinges are heavy enough to hold it in place and the latch will shut it tight. Many boxes have a rubber gasket around the door to help keep the heat out.

You cannot see the insulation in a refrigerator, but it is a highly important thing to consider. It is the insulation that keeps the heat from seeping through the sides of the box. There should be plenty of it. You can get some idea of this by looking at the thickness of the doors and the walls. It should be effective, too. Since most boxes look pretty much alike and you cannot see through the walls to judge this insulation for yourself, you are going to have to depend on the reputation of the refrigerator, and on the good name of the manufacturer and the good name of the local dealer to assure you that you are getting a box with adequate insulation and honest workmanship.

When you are buying that box, there are other things too, things you can actually see, that should have some weight in your selection. It may even make a difference in the way food keeps if the inside lining of the box is seamless, acid resistant porcelain. Such a lining offers no cracks where bits of food can lodge to become sour and decay. And besides that, with rounded corners that do not catch dirt, it is easier to keep it clean.

The racks should be strong, rust resistant, and easily taken in and out. The placing of these racks and the space between them differs, so we can find out which arrangement best suits our needs only by experimentation.

Miss Ellen Cushman of Cornell suggests that it is a good idea to make a paper pattern of the shelves in a box you are considering. Just as you sometimes make patterns of furniture and rooms to study the placing, you know.

Lay out these patterns on your kitchen table and

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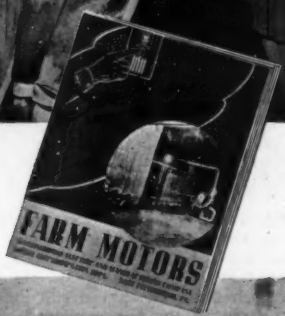

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The door opens the right way in this convenient location. Notice that the shelf pulls out and is held in place. There is a great variety of shelf room, low, middle sized, and high, isn't there?

fill them with dishes in which you will store food.

If you draw around each dish and write in the name, you can get some idea of how much food you can put in the box at once.

It is well to remember that these penciled lines should not touch, for you have to leave a space between your dishes to let the cold air circulate throughout the box.

It isn't at all likely nowadays that anyone will neglect to make sure that the refrigerator she is considering will fit into the space she can offer it. But it may be that even you have neglected to make sure that the door swings the right way.

It should open so you can put food in, or take food out of the box without walking around the door each time. See what I mean? It must open toward the work table or counter where you will naturally set the food. A little thing, but important.

• • •

SOME ONE SHOULD HAVE TOLD ME

NOT hearing any answer to my knock, I opened the door and poked my head into the kitchen. "Anyone home?" I asked.

Beth turned toward me and waved a welcome, but she didn't take her hand from the bowl she was slowly moving under the electric mixer.

"I can't think what is the matter with these eggs," she said, a worried frown wrinkling her brow. "They won't beat up."

I peered over her shoulder and saw that the eggs did look pretty flat.

"I guess I'll have to try some more," she sighed, stopping the motor. As she lifted the beaters out of the bowl, I caught sight of a little dab of batter on one of the blades.

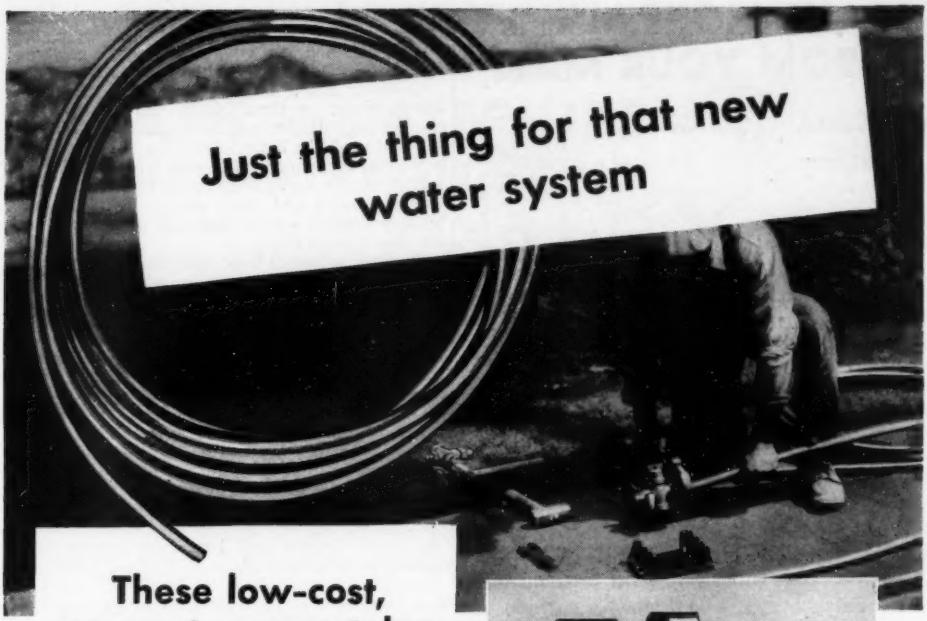
"Hi, wait a minute," I said leaning over and poking off the little lump of dough. "Did you cream the shortening with this first?"

"Sure," said Beth, emptying the eggs into a bowl and hurrying toward the refrigerator for more. "The rest of the cake is all mixed. I just have to add these whites."

The beaters comes off easily for cleaning.

"It doesn't look as though you had washed the beaters before you began on the eggs."

"I didn't," said Beth, looking at me in some sur-



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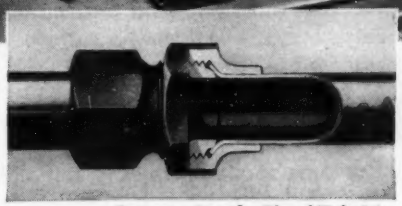

Cutaway view of a Flared-Tube Joint

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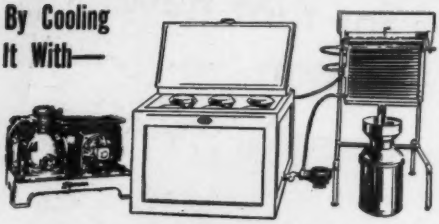

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prise. "I just scraped them off with my rubber scraper. There certainly isn't anything dirty about that batter, and it's all going together anyhow." This last half defensively.

"Nothing dirty," I agreed, "but with just a little smear of fat on these blades you can't beat up egg whites. It flattens them out in short order. If you'll wash the beaters and wipe them dry, you'll be able to beat up the next eggs all right."

And so she was. There wasn't anything wrong with the eggs, and there wasn't anything wrong with the mixer. Beth was just breaking a rule she didn't know about.

"Some one should have told me," she said in an aggrieved way as she saw the new batch of eggs whirled into frothy peaks.

Perhaps so. They should have told her, too, that while she can take the beaters out and wash them in soapy suds in her dishpan, she must wipe off the mixer where it stands. You can't dunk an electric motor, you know.

Of course, Beth could have saved one washing if she had gone at the mixing the other way round, that is, if she had beaten the egg whites first. The bits of white that cling to the blades will do no harm in the rest of the mixing.

Beth knew that the bowls she got with her mixer were glass, but they look so thick and substantial, she forgets it now and then. She knows, if anyone were to ask her about it, that sudden changes in temperature are risky for glass, still she broke her big bowl one day through forgetting it. It was in January, I think, and she brought the bowl in from the cold pantry to beat up some eggs for

Getting dinner.

a boiled frosting. As soon as she turned the boiling syrup down the sides, the bowl cracked and fell apart.

She could have had the bowl at room temperature easy enough, just by getting it out a little earlier. And then as a further safeguard, she could have poured the boiling syrup into the eggs and not on the glass itself.

She has a nick or two out of the rims, I notice. She got them by knocking the beaters against the edge to dislodge chunks of batter. Some one

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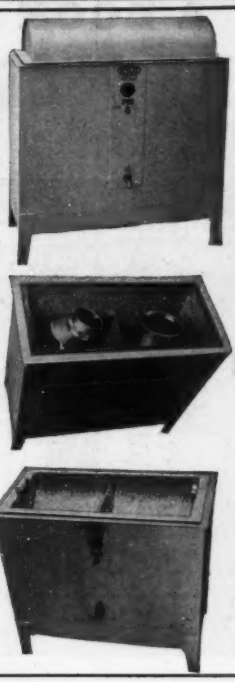

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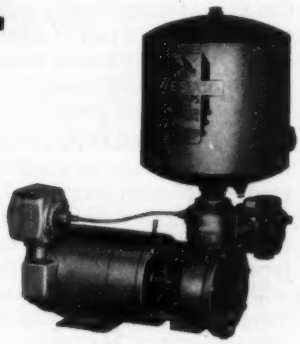

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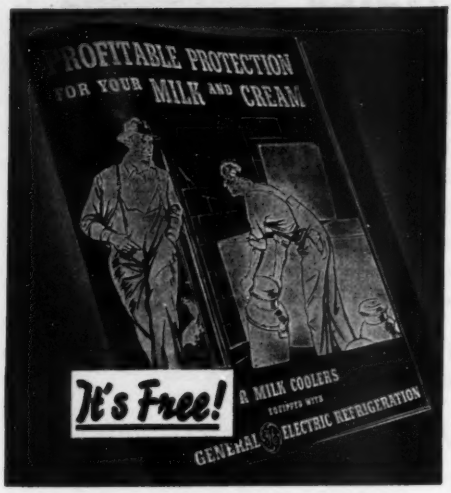

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MILK COOLING EQUIPMENT

should certainly have told her that she could clean them off better by tipping back the motor, lifting the blades out of the batter, then letting them turn very slowly.

Beth hasn't begun to get as much use as she might out of this new mixer of hers, not only because she does not know all that it will do, but because she has it tucked away on a bottom shelf in the pantry. To get it she has to move the roaster, a rattling tower of muffin tins, and a pile of mixing bowls.

If she would give it a permanent place on the work counter, with the bowls in easy reach it would save more of her time and her efforts. All day long it might supply an extra pair of hands for kitchen jobs. Popovers for breakfast, a cake, mayonnaise, eggs for omelets, mixing the meat loaf, shredding the salad, mashing the vegetables and making the pie.

Are you wondering about the pie? You can cut the shortening into the flour in a jiffy if you will run the motor at low speed. Then mix the water into the dough with a fork as usual.

Mashing vegetables ought always be a job for machinery when there is a mixer around the place. It works so fast and so thoroughly that the potatoes stay piping hot while they are being whipped up.

Somebody told me the other day of eating a combination of potatoes and carrots beaten together to an incredible lightness, seasoned with plenty of salt and pepper, and topped off with a square of yellow butter.

"Do you think I could knead my bread with my mixer?" Beth asked me one day. "If I took it slow?"

"No," I answered promptly. "Your mixer is not designed for bread making, not the heavy mixing. But if you had read your February copy of Electricity on the Farm you would have noticed that

(*Continued on page* 30)

A mixing machine like this will knead bread. Of course it beats and whips and mixes, too. You can make it do just about everything from squeezing tomatoes through a colander to turning the ice cream freezer.

For May

MAYBE the kitchen is not the nicest room in the house, but it sounds as though it were. We are going to hear more about these kitchens later, but our first choice this month goes to Mrs. Merle Jaquith, Sherman, N. Y.

Not long ago I went to a wedding, a very pleasant wedding of two young people I dearly love. I was looking at their wedding gifts, dozens and dozens of lovely things from shining crystal goblets to electric casseroles, when Aunt Bricey came over to where I stood.

Aunt Bricey is Scotch and eighty. There was a merry twinkle in her eye when she said, "A deal of stuff that, isn't it? Now when I was married my mother gave me a few tin pans. Those were all the presents we had, but we were pleased as Punch. Tin—mind you."

I've heard other women tell about their household gear, too. It is always interesting, so why not tell us what you started out with, fifty years ago or last month. We will all be interested in hearing you tell about

"When I was married."

All letters submitted become the property of this magazine, and in the event of their subsequent publication, the writers thereof will be compensated for their contributions at space rates. This, however, does not apply to the prize winning letter of the month, for which the compensation is five dollars.

The letters should reach me on or before the 20th of April. Address them to Gail Meredith, 1026 Seminole Highway, Madison, Wisconsin.

MY KITCHEN

"I LOVE my kitchen. I have been nearly twenty-five years changing it from a dull unhandy farm kitchen to a bright interesting workshop.

This room is long and narrow, thirteen by ten feet. One enters from the outside through a glass windowed door, in the center of the southern wall. Directly to the left, as you enter, is the electric refrigerator. The entire western end is taken up with the kitchen cabinet and cabinet sink, both of white steel with black knobs and pencil lines. The kitchen cabinet

Electric Motor Power

Always At

Your Finger Tips

One of the many advantages of Century Repulsion Start Induction Single Phase Motors for farm work is that they are ready, day or night, automatically if you chose, to work for you.

To start a Century Motor — any time, any where — simply close the switch.

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MOTORS

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holds everything needed in baking; pots, pans, flours, spices, sugars, measuring cups and spoons and all supplies. Its large table top is just the right height on which to work. The sink drawers hold everything needed in the preparation of vegetables as well as dish cloths and towels. Large windows over the sink provide light for the room.

From the northwestern corner to the stove is a shallow built-in cupboard in which is kept everything needed to cook on the stove. Here are the cereals and beverages, and the pots and basins in which they are cooked, also measuring cups and spoons. In front of this cupboard is a board shelf, scrubbed white and smooth. This shelf is exactly as high as the stove and extends to it. Sentiment made me transplant this shelf from the old pantry, now a modern bathroom.

My new electric range exactly fits the space from the cupboard to the hall door, which is in the center of the northern wall. This completes my working equipment, which occupies the western end of the room.

A cupboard from the hall door to the corner holds all the everyday dishes and food not in the refrigerator.

A door in the eastern end leads to the dining room. The southeastern corner is furnished with a small table and four chairs and here the family dine, when alone. All woodwork is white with black hardware. The wall paper has a tiny red figure. My towels and curtains are red and white. Cereal and spice jars, bread and cake boxes are white with black or red appliques as are also the waste basket and garbage pail. The latter two under the shelf. The floor linoleum is putty colored with red and green modernistic design. Well placed electric lights are near the sink, stove and table.

Yes, I love my kitchen.

(Mrs.) Merle E. Jaquith,
Sherman, N. Y.

Some One Should Have Told Me

(Continued from page 28)

Mrs. Winifred Reynolds of Westfield, New York, uses hers for that first stage of bread making, mixing the flour and liquid. That is no heavier job than making a cake or mixing up waffles. It is when you try to make it mix doughs so stiff they stall the motor that you shorten its days of usefulness."

Now Beth is just beginning to be interested in all those other tools the mixer motor will run to squeeze fruit juices, to slice or shred, to stir up a malted, grate vegetables or cheese, to polish silver or open tin cans. Even to sift the flour into the cake. A versatile worker, isn't it?

"Eat your spinach, child. Don't you know it puts firm, white teeth in your mouth?"
"Then feed it to grandpa."

"Your wife is very broad-minded, isn't she?"
"Oh, wonderfully! She believes there are always two sides to a question—her own and her mother's."

Does the "Farmer's Wife" in your Household Have to Fuss With Broken Down Electric Cords?

Sometimes the best way to keep appliances in working order is simply to cut off the defective cords and replace them with new ones.

When Replacements are Made, Select Cords Which Comply With the Safety Standards of Underwriters' Laboratories.

If you buy sub-standard cord, you have no assurance as to its safety against fire and shock hazards, but when you buy Underwriters' approved cord you know that it has passed tests to assure safety in both of these regards. Approved cords carry the Laboratories' bracelet label on every length. Let this label be your buying guide.

PUBLIC RELATIONS COMMITTEE
INTERNATIONAL ASSOCIATION OF ELECTRICAL INSPECTORS
85 JOHN STREET, NEW YORK, N. Y.

ON THE AIR

Conducted by JEROME J. HENRY

In for a Panning

BEING tenderfeet when it comes to wide open spaces of the wild and wooly west, Lum and Abner had high hopes of digging a little gold here and there when they went to Hollywood for their first trip to the Pacific Coast last winter. They had heard that "there's gold in them thar hills."

When the two old gentlemen from Pine Ridge boarded a transcontinental flyer in Chicago, a miniature shovel, pan, and pick were prominent parts of their luggage.

Lum and Abner took their wives to the movie capital and established their homes there at least for a while. But wherever they are the program which they put on the air goes on without interruption.

• • •

Radio's Newest Journalists

UNCLE Ezra's Rosedale, famous home of the mythical five-watter radio station EZRA, has a rival on the Barn Dance broadcasts now that Tobias Tolliver and Susie Sharp are putting Bugtussle, Iowa, on the map with their "Cockeyed News."

Tobias and Susie, who in private life are Mr. and Mrs. Neil Shaffner, made their rollicking comedy popular over a station at Carthage, Illinois, about a year ago during a lull in their tent show business.

They were formerly heard over the radio in Des Moines, Iowa. Although Tobias and Susie live in a Chicago hotel during their Barn Dance engagement, they call a brand new trailer "home." They have it ready and even now may have heeded the call of spring and started over the open road. In the winter, however, they're content to dish up the dirt of their fictitious Iowa village as publishers of a small town tabloid.

• • •

Six Arrangers on Chandler Staff

REX CHANDLER, brilliant radio conductor, brings a colorful background to his direction of one of the largest orchestras heard on the air. In addition to being a topnotch musician, he is an aviation enthusiast and a world traveler.

His Universal Rhythm orchestra, heard every Friday evening, is made up of 43 pieces. Usually radio dance bands average from 18 to 20 men. The reason for the large Chandler band is the intricate arrangements. It takes a staff of six arrangers to prepare the orchestrations. Chandler's string section alone includes 18 men. There are also two harpists.

The personable young maestro's travels have led him across the Atlantic 36 times and the Pacific and Indian Oceans twice. He has conducted symphony and dance orchestras in Africa, Australia, Madagascar and throughout the Orient. He has lived abroad for 15 years. In the United States

ESCO NI-AG-RA *the only* MILK COOLER

THAT AUTOMATICALLY COVERS THE DANGER AREA!

Whether only one can, half capacity, or both milkings are in place.

The top layers of milk and cream are the danger area of high bacteria concentration and growth. The milk at the top, as well as the lower part of the can, must be properly cooled to below 50° and kept cold—to keep bacteria counts down.

LOOK AT THESE PICTURES

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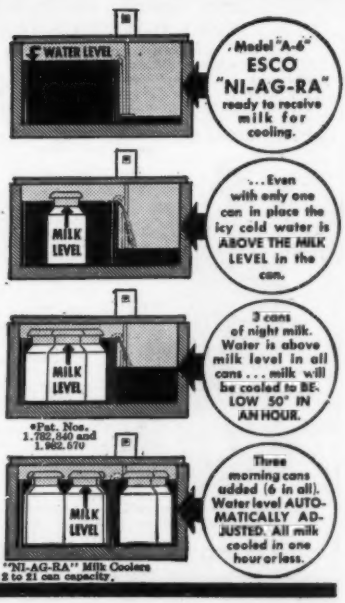
The EXCLUSIVE PATENTED NECK-HIGH WATER LEVELER does this automatically—no valves to turn—no dummy cans—works just like a waterfall.

The ESCO "NI-AG-RA" gives you Faster, Better Cooling—at lower cost.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Model "A-6" ESCO "NI-AG-RA" ready to receive milk for cooling.
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...Even with only one can in place the icy cold water is ABOVE THE MILK LEVEL in the can.
MILK LEVEL
3 cans of night milk. Water is above milk level in all cans ... milk will be cooled to BELOW 50° IN AN HOUR.
MILK LEVEL
Three morning cans added (6 in all). Water level AUTOMATICALLY ADJUSTED. All milk cooled in one hour or less.

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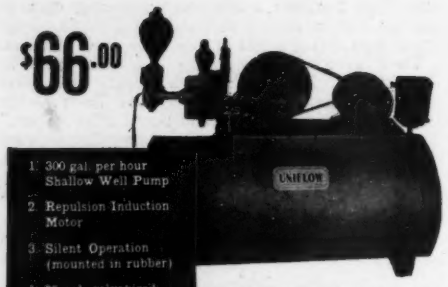

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10. Completely assembled in one crate

THE GEM "30"

The Gem 30 with its Quiet Capacitor motor rubber mounting and one way water travel is so silent in operation that all you can hear is the swish of the water pulsing through. It's quality at a price that can't be beat. Terms available.

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ADDED TO VIKING LINE OF FEED ROOM EQUIPMENT FOR ELECTRIFIED FARMS

Has fast action seed corn tipper . . . automatic feed and shells nubbins and large ears with equal efficiency . . . capacity about 30 bushels of ear corn per hour . . . discharges cobs at high point from ground—operates from own one third horse power motor or from motor of Viking Junior Hammer Mill. Made of electrically welded steel and should last a life time.

The Viking Hammer Mill allows you to grind your own feed, at low cost, when you want it, as you want it. Grinds up to 700 pounds of feed per hour with less than one kilowatt hour per hour. Operates from one half horse power motor. Has automatic non-fouling feed that permits you to go on about other work while the mill keeps right on grinding.

The Viking Feed Mixer mixes grains, seeds, mashes and concentrates and does an outstanding job on inoculation. Has patented kneading action that prevents oily mixtures from working into balls or lumps. Operates from one third horse power motor or from motor of hammer mill.

Write for literature and complete information and state whether interested as a dealer.

Viking Manufacturing Co.
Jackson, Michigan, U. S. A.

he has visited every State, and in Canada, every Province. He is a native of Melrose, Massachusetts.

Chandler has been flying since 1918. It was at about that time that he met Glenn Curtiss, who was impressed by several airplane models Chandler had built. The meeting developed into friendship and, as time passed, Chandler's interest in aviation developed. He bought his own plane. Now, he has more than 2,500 flying hours to his credit.

• • •

Japanese Radio Actress

THE first Japanese actress to be starred regularly on a network broadcast is believed to be pretty Elizabeth Ito, 23-year old graduate student of the University of Chicago. She plays the part of Suli Wing in Jack Armstrong, the All American boy over NBC stations.

Miss Ito got her chance to act on the radio purely by accident. She heard from University friends that Myrt and Marge were looking for a Japanese girl to play the part of "Yuki" in their serial. Auditioning for the part, even though she had never acted before, Miss Ito was immediately chosen. She appeared on several programs later and finally came the chance to do the role of Suli.

Born in Chicago, Miss Ito is an American citizen and has two brothers and two sisters who are

Betty Ito, Japanese actress, student, and secretary. She speaks Japanese, German, Italian, and perfect English.

American born. Miss Ito is now working toward her Doctor's degree. Between broadcasts she is secretary to a professor of Germanic languages. Some day, she says, she may go to Germany to finish her work in German, her major at the University, and may then go to Japan to teach, but that's only if her radio and stage career don't develop as rapidly as she hopes. Right now she is all wrapped up in the idea of acting.

Recollections

Traveler: "My, the air up in these mountains is surely great, isn't it?"
Old Mountaineer: "Well, jes' fair to middlin', stranger, jes' fair to middlin'. 'Taint nothin' compared to like it wuz back in Cleveland's 'amministrashun."

Small Laying Flocks May Be Fed by Hopper Method

Farm flock owners who find it inconvenient to feed laying hens at regular hours each day should find the results of an experiment on hopper feeding conducted by the Michigan State College of interest and value, says J. C. Taylor, associate extension poultryman at the New Jersey College of Agriculture, Rutgers University.

"Two pens of Leghorns and two pens of Rhode Island Reds were fed corn and oats and a laying mash containing 20 per cent crude protein in hoppers during the experiment," Mr. Taylor reports. "The feed was available to the birds at all times. In addition, approximately two pounds of wheat were fed daily in the litter to keep the litter from packing.

"Satisfactory egg production was obtained by the hopper feeding of corn and oats and 20 per cent protein mash and no difference in mortality was found when compared with flocks fed according to the usual method.

"The use of artificial lights increases the success of the hopper feeding. This method may solve the feeding problems of the general farmer who cannot practice the recommended regularity of feeding laying birds."

Brass Tacks

(*Continued from page* 17)

finish; it may be covered with metal, with a composition board of some kind, or with linoleum. It should be easy to keep clean and indifferent to hot dishes.

The space between the counter and the bottom of the cabinet should be wide enough for the mixer to stand.

In planning for the shelves, I suppose you have to take a census of the things that must go there. Let's see. No two kitchens will have just the same things of course, but in most of them, this food preparation center will take care of the flour and sugar, the salt and spices, baking powder, soda, flavorings. The things you need for mixing food. Bowls, and spoons, measuring cups, rolling pin, and the bowls of the mixer itself. Besides that there are cutting boards, pans and cookie sheets.

You will see as you go along that the secret of perfect planning for storing anything is to arrange it so you can get any utensil or any supply without handling any other utensil or any other supplies. Have you ever seen such storage? Neither have I, but I have seen pictures of it, and I'm always hoping I'll have it some day.

By the time you have devised a spot for every last bar of chocolate and laid the last muffin tin to rest, you will not need to have anyone point out to you how handy it will be to have the door of the refrigerator open toward the counter so you can reach in for butter and eggs without setting down what you have in your hand.

Then when you have drawn in shelves for all these things, might it not be a good plan to sit down and draw another for salad plates, for the bowls for sauce or salad, or for dishes for desserts you will take out of the refrigerator?

Yow!

Landlady: "If you don't stop playing the saxophone you'll drive me crazy."

Sax Player: "Ha ha! You're crazy already. I stopped playing an hour ago."—*Red Cat.*

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BRING 4 ADVANTAGES OF RUNNING WATER AUTOMATICALLY AT THE LOWEST COST EVER!

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● A hundred times a day . . . for dozens of household and farm tasks there is a real need for instant, running water. Now you can have it, plus every one of the advantages it brings . . . at the lowest cost ever! . . . Delco Pumps give you the constant service of running water at a cost of only a tiny fraction of a cent per gallon! Available in a wide variety of sizes. 32 volt and 110 volt. Capacities up to hundreds of gallons per hour. For deep and shallow wells. See your local Delco Pump dealer. Or mail the coupon below.

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Your Delco Pump dealer will gladly arrange finance terms to suit your needs. Ask him.

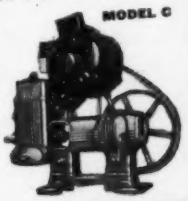
A NEW LOW COST DELCO PUMP

MODEL C

Capacity 225 gallons per hour. Automatic. Operating pressure 20-40 lbs. Recommended for lake, well or cistern where lift does not exceed 22 ft. Available in either 32 volt or 110 volt.

(110 volt A. C.) **$46.50**

Also Delco deep well pumps available for depths exceeding 22 ft.



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PRODUCT OF GENERAL MOTORS

Trindl ELECTRIC ARC WELDER

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Works Off Any Storage Battery or Ordinary Light Socket

This new electric arc welder is made possible by the invention of a low voltage carbon. Auto batteries may be used without removing from car. Uses about same current as four headlight bulbs. Can be used on electric light socket by using a Trindl Converter in place of battery. Broken parts are simply melted together by the white hot electric arc, in just a few seconds. Produces about 7000 degrees heat.

Hottest Flame Known

Melts iron and steel instantly. Welds fenders, radiators, holes in bodies, milk cans, tanks, brazes broken castings. Works on anything iron, steel, brass, copper, tin or galvanized metal. Permanent repairs made for almost nothing. Used by factories in many operations. Positive money back guarantee by a responsible firm.

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Free Information About Equipment

Readers—we are glad to help you secure catalogs and descriptive literature on electrical appliances and equipment. It is a FREE service and NO OBLIGATION is involved.

When seeking information about any piece of equipment or material you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want—use the handy coupon below, listing clearly and exactly the items on which you want further information.

___Animal Clippers	___Milking Machines
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Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying. .....

My name is .....

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Questions and Answers

Conducted by R. U. BLASINGAME

Motor for Meat Grinder

Question: *How can I hook a household meat grinder to an electric motor?*

O. M.

Answer: Some hand-powered household meat grinders can easily be electrically driven. A cast iron pulley is substituted in place of the hand crank and to this a motor is connected by a belt. The manufacturer of your grinder likely can supply you with a pulley and furnish you with specifications as to the proper size of motor and motor pulley for driving the size of meat grinder you have. It is advisable to use at least a ¼-horse power motor as one of this size or larger can readily be employed for other jobs such as churning, turning the emery wheel and the like.

As the grinder pulley will be large in diameter (about 12 inches) and the motor pulley small, (about 1½ or 2 inches in diameter) in order to give the grinder the proper speed a "V" type belt should be used with a "V" pulley on the motor. The grinder pulley may have a flat face.

Motor for Irrigating

Question: *We have just purchased the farm we are living on. It is equipped with electric lights and we also have a washing machine, electric iron and radio. We have a well under the house but do not have a pump or heater. We have just had this house built and will therefore have to wait to add these conveniences. In addition to the house well we have a well for irrigation. Our farm consists of 40 acres and we have been told that we cannot secure an electric pump large enough to irrigate this farm.*

We would like to know whether or not this statement is correct.

R. D.

Answer: Most power companies have certain regulations concerning the size of equipment to be installed on their lines. This is necessary in order that all patrons connected to the line receive the best possible service and are not bothered with changes in voltage caused by their neighbor using some large machine. You should first write to the manufacturers of the pump you plan to use, asking for the size motor required for this pump and the diameter of the pulleys to be used. Give them all available information, such as the number and size of the pump, the height of the pump above the water and the height to which the water is to be pumped, or the pressure against which it is to be pumped. The length of pipe should also be given, and you might ask the company the size of pipe that should be used.

Knowing the size motor required, your company can tell you if it will be possible to use it on their line, and the approximate cost.

Horse Sense

Friend: "Why have you given the general such a peculiar pose?"

Sculptor: "You see, it was started as an equestrian statue, and then the committee found they couldn't afford the horse."

ELECTRICITY gives you modern water supply at the turn of a faucet . . . Saves work and worry . . . A joy to all the family. But be sure you buy the system best fitted to your needs.

Electric Water Systems Built to Last a Lifetime

HOOSIER Electric Pumps and complete water systems are built to last a lifetime. Give dependable service *every* day. Extra-sturdy. Amply powered. *Galvazinc* protection inside and out. No rusty water. Oil and water can't mix.

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Famous "Red Fred" Jacks. Quiet—easy running—fully enclosed—machine cut pinion and gears packed in grease. Leverage advantage on up stroke allows use of smaller H.P. Motor. Complete assembled Outfits or Jack units only.

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ELECTRIC CARPENTER

7 MACHINES IN ONE

A COMPLETE PLANING MILL

½ TO 1 H.P. MOTOR

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BLIZZARD OPERATES EASILY, ECONOMICALLY, EFFICIENTLY

WITH **5 H.P. ELECTRIC MOTOR!**

The Blizzard Ensilage Cutter and Hay Chopper operates with ease and amazing satisfaction with electric power. At Michigan State College 4 silos were filled with a total of 188 tons of ensilage at a total power cost of $5.34 using only a 5 h.p. motor.

Many farmers have found that the Blizzard and electric power make an ideal, profitable combination. Get free catalog at your dealer's or write us direct.

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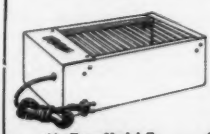
Electric Insect Traps for Home or Commercial Use

Bug Trap Model C



Fly Trap Model B

Insect killing capacity unlimited. Harmless to humans. Operating cost under 5c per month. Ask your power company about the Insec-Tro-Cutor. Write for folder.

The Insec-Tro-Cutor Co. 403 No. Hoover, Los Angeles, Cal.

THE INSEC-TRO-CUTOR

What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Thermal Overload Switch for Fractional Horsepower Motor

Fractional-horsepower motors occasionally burn out from overload when driving farm electrical equipment particularly water pumps. The inability of an operator to determine when a motor is overloaded may require the rewinding of a motor. Motors, which operate automatically, should always be equipped with protective devices which will protect them from

overloading. Others should be insured against overloading by the use of such equipment.

A new thermal overload switch for fractional-horsepower motors has been recently placed on

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EXTRA PROFITS ARE YOURS WHEN YOU USE LYON ELECTRIC BROODERS. These well proven brooders turn out healthy, hardy chicks at low cost. Write for FREE CATALOG OF ELECTRIC POULTRY SUPPLIES. Fan brooders, fly electrocutors, incubators, time switches, burglar and fire alarms, supplies for home-made equipment. LYON ELECTRIC CO., DEPT. EF, SAN DIEGO, CALIF. Pioneers of Successful Electric Brooding.

IDEAL HAY HOIST operates Hay Carrier with 2 to 5 H.P. motor or engine. Saves extra team and driver all through busy haying season. 10 DAYS' FREE TRIAL. Write for circular 207, UNIVERSAL HOIST & MFG. CO., CEDAR FALLS, IOWA.

SAFE, SANITARY ELECTRIC LAMP KILLS INSECTS AUTOMATICALLY without bait or cost where light is needed. Amazing results in garden, farm, lawn, business house, home, etc. Lifetime service. Price $2.75 up. Literature free. SAUER BROS., MFRS., 14820-M Foothill Blvd., Oakland, Calif.

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the market by a leading manufacturer of electrical equipment. This device, which may be mounted on the conduit or terminal box of the motor, automatically disconnects the motor from the line and reconnects it after the motor is cooled. The switch is available in a form where the reconnection must be made manually. The switch is available for a.c. fractional-horsepower motors having rated full-load currents from 1.3 to 10.4 amperes, which include motors from 1/30 to ¾ horsepower.

Matched Household Appliances

Electrical appliances, which may be used at the table are no longer novelties in farm homes. Bread may be toasted as it is needed on the toaster and the coffee made by the percolator at the table. Waffles too may be baked on the waffle iron and bacon, eggs or sausage cooked on the sandwich toaster and served directly at the table.

A line of matched appliances was recently announced by an eastern manufacturer of electrical household appliances. Included in the line, which is chromium plated with solid walnut handles, are five appliances. There is a 6-cup coffee percolator

with safety fuse plug, a 2-slice toaster, a waffle maker with heat indicator and expansion hinge, a sandwich toaster which holds two full-size sandwiches or may be used for frying, and an 8-cup coffee urn set including urn, creamer and sugar bowl.

Why the Electric Bill Was High

LAST summer a thrifty housewife in a Sacramento valley (California) town bought an electric refrigerator. She had been assured by the salesman that it would save enough on food and ice bills to pay the operating cost and most of the monthly installments.

But the first month the woman used the refrigerator her electric bill was so high she "almost had a fit." She summoned the salesman and he was very much surprized at the high operating cost. An electrician inspected the mechanism, found everything O.K., and was equally baffled.

The second month the woman's bill was even higher and she threatened to return the appliance and tear up her sales contract. Again the salesman and the electrician hurried out to her home. What they saw solved the high bill mystery instantly. There was Mandy, the maid, singing happily while doing the family ironing right in front of the refrigerator, which had its door wide open. She greeted the pair with: "Boy, dat electric 'frigerator sho am fine. It gives such a nice cool breeze on mah back."

Since Mandy learned that the refrigerator isn't an air conditioning unit and that leaving the door open wastes electricity, the appliance has lived up to all the saleman's promises about savings.

HORTON

Kleen Zoning

For CLEANER WHITER Clothes

An entirely new way to build washers, exclusive with Horton, assures cleaner, better-looking clothes. Inside of washer and agitator always clean, sweet, absolutely sanitary. Long stroke agitation sends more water per minute through clothes—means faster, more thorough washing. Many other exclusive Horton features mean less work, better satisfaction through the years.

HORTON MFG. CO., 516 Osage St., Fort Wayne, Ind.

HORTON WASHERS—IRONERS. SINCE 1871

DON'T LET *Another Year* PASS WITHOUT A

BURKS

SELF PRIMING SUPER TURBINE

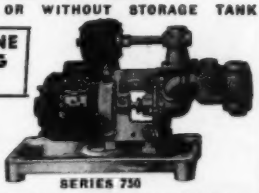
WATER-SYSTEM

AVAILABLE WITH OR WITHOUT STORAGE TANK

NO Leathers, Pistons, Pulleys, Chains, Cranks, Valves, Liners, Gears, Belts

ONLY ONE MOVING PART

LIFTS WATER 28 FEET



SERIES 750

Provides running water constantly for all farm and home uses. A BURKS Water System eliminates the drudgery from household duties and supplies livestock with running water at all times.

The BURKS Auto-Built Deep Well Pump is recommended for depths beyond 28 feet. Provides up to 1000 gallons per hour.

DECATUR PUMP COMPANY • DECATUR, ILL.

GENTLEMEN:

PLEASE SEND ME INFORMATION COVERING BURKS ☐ SHALLOW WELL, ☐ DEEP WELL PUMPS WE REQUIRE [ ] GALLONS PER HOUR

SIGNED .....

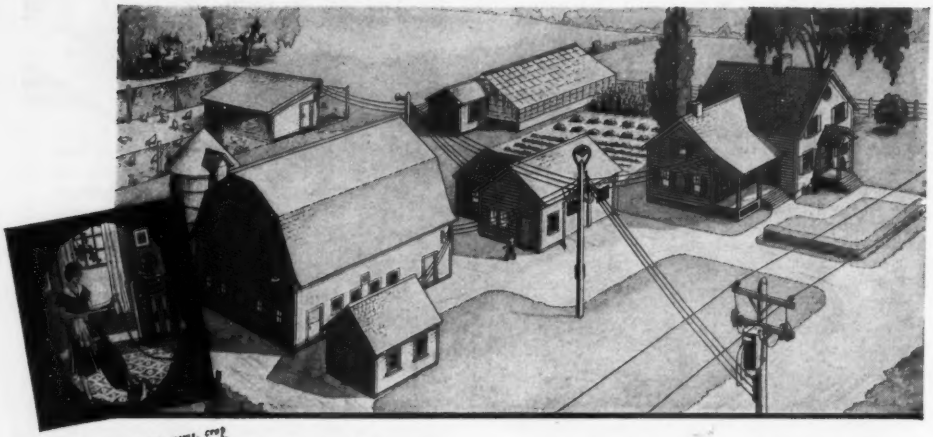
ADDRESS .....

TOWN .....

DECATUR PUMP COMPANY • DECATUR, ILL.

Give Electricity a Chance

Install G-E Farm Wiring



G-E radio sets bring news, crop reports, and entertainment. G-E cleaners remove dust and dirt and protect rugs

G-E home laundry equipment cuts laundering time in half, cleans clothes thoroughly, and preserves their life

G-E portable farm motors operate ensilage cutters, feed grinders, wood saws, buzzers, shredders, etc.

SEVENTY out of every hundred farm families who have installed electricity have, within two years after the installation, been unable to enjoy many much-desired additional uses of electricity because they had skimped on their wiring.

Avoid "skimped wiring" as you would a tubercular cow. It strangles your use of electric services, jumps up your costs, and demands expensive additions and alterations every few years.

A "roomy" wiring system with large enough wire, good materials, and plenty of outlets, is the very foundation that supports the full, profitable, enjoyable use of electricity.

For your own protection and economy, have a competent contractor install this kind of a wiring system. Demand "G-E Farm Wiring." It will last a lifetime and give you the best and lowest-cost operation of every electric device for use on the farm. You install it and forget it. You don't even have to worry about fuses—little circuit breakers like those used in factories take the place of fuses. A flip of a handle resets them if they trip out on overloads.

If you are wiring for the first time or rewiring for further enjoyment of electric service, write for our booklet, "The Farm Wiring Problem." Address Rural Electrification Section, Room 620, General Electric, Schenectady, N. Y.

The G-E Kitchen saves many steps, simplifies food preparation and cooking. Shown here are G-E refrigerator and G-E range

98-1E

GENERAL ELECTRIC

COVER TITLE CONTEST

MARCH COVER

Why Not Participate in This Month's Contest?

HERE ARE THE RULES

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief—the shorter the better.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before June 1st.

Winning names and titles will be announced in the July issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

Awards for March Contest

First Prize — $20

"The smile between the high line and the clothes line."

F. R. OMANN, R.F.D. 1, Knierim, Iowa

Nine $2.00 Cash Prizes

"A wish—a wash and away."
MRS. M. E. MEREDITH, R.F.D. 2, Box H, Union Grove, Wis.

"Wring in the new
Is electricity's cue!"
MRS. WILLIAM J. CHERRY, R.F.D. 5, Xenia, Ohio

"Plug in—no rubbin'."
MARK SCOFIELD, R.F.D. 1, Gahanna, Ohio

"Scrubbing and boiling! What's the use?
Use little soap and electric juice."
MRS. T. J. GRIFFITHS, R.F.D. 1, Dousman, Wis.

"Song of the suds, in a happy home farm that's electrically run."
MRS. H. E. BALDWIN, Bayberry Lane, Westport, Conn.

"Electricity shoos washday blues."
PEARL CLARK, Road 31, Kokomo, Ind.

"Suds chase dirt,
Electricity chases work."
MRS. ELIA CLEMENSON, P.O. Box 90, Dorothy, N. J.

"The washday bug-a-boo does not alarm
Since electricity came to the farm."
I. D. McBEE, R.F.D. 1, Nacogdoches, Texas

"Washday becomes joy day
When electricity does it the 'Kwickway'!"
MRS. LONGSTREET CAVETT, Morristown, Tenn.

My title for the May Front Cover picture of ELECTRICITY ON THE FARM is.....

.....

.....

(a) What other magazines besides ELECTRICITY ON THE FARM are received regularly by your family?

.....

.....

My name is..... R.F.D. .....

Post Office..... County..... State .....

5-37

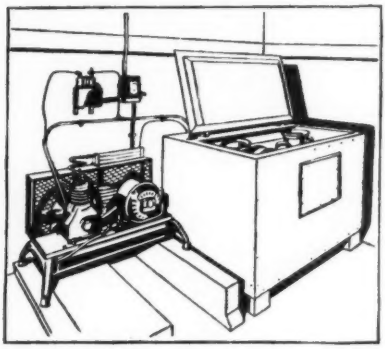
ELECTRICITY ON THE FARM
24 West 40th Street
New York, N. Y.

Return Postage Guaranteed

Check Bacteria Growth

with

Electric Refrigeration



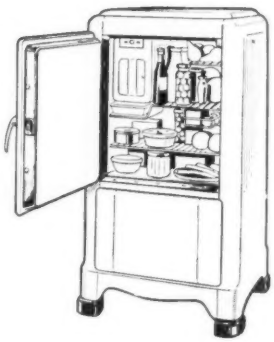
ELECTRIC MILK COOLING

Eliminate rejections for high temperature milk with electric refrigeration. It keeps bacteria count down and is the surest, easiest and most economical way to get all the milk and cream money coming to you.

ELECTRIC REFRIGERATION

Also Vitally Necessary for Food Preservation in the Home.....

Protect the health of your family with an Electric Refrigerator. Its constant, even cold keeps the food you store fresh and wholesome for days. It prevents "left over" waste. It makes many foods taste better.



ASK YOUR POWER COMPANY

or your electrical equipment dealer if you need further information. Or, if you prefer, address your inquiries to ELECTRICITY ON THE FARM, *24 W 40th St., New York, or 6 No. Michigan Ave., Chicago.*

Agricultural Library,
Pennsylvania State College,
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